

**Responses to EPA Comments on the Draft Supplemental Site Investigation Report for Site 21, St. Juliens Creek Annex, Chesapeake, Virginia (CH2M HILL, April 2006)**

PREPARED FOR: Tim Reisch/NAVFAC  
PREPARED BY: CH2M HILL  
COPIES: Dan Waddill/NAVFAC  
DATE: October 5, 2007

CH2M HILL has prepared the following responses to comments received from EPA on the Draft Supplemental Site Investigation Report for Site 21 at St. Juliens Creek Annex, Chesapeake, Virginia. The Draft Supplemental Site Investigation Report for Site 21 will not be finalized and is being incorporated into the Draft Remedial Investigation Report for Site 21.

**EPA Comment 1.** My main concern with the report is that the reported TCE found at the top of the Yorktown confining unit is a red flag for a more detailed investigation of the Yorktown aquifer. Since the report documented organics at the top of the Yorktown confining unit, a vertical extent of contamination into the aquifer is needed. The discussion on p. 4-8 regarding saturated zone flow should discuss the possibility of the DNAPL entering the aquifer. Although it is helpful that nothing showed up at MW-01D, there is no information about flow in the deeper aquifer from the source area. Although I realize that no one wants to move the contamination deeper, there are different ways of doing this which can be discussed.

**Response to EPA Comment 1:** Based upon results from monitoring well MW01D, in which organics were not detected, the deep groundwater does not appear to have been impacted by Site 21 activities. This reasoning is further substantiated by inorganic data from the site. Arsenic and vanadium were detected sporadically in the Yorktown aquifer but were not identified in the Columbia aquifer within the same area of the site. Additionally, a laterally extensive hydraulic aquitard (Yorktown confining unit) is present in which there is very low vertical permeability in clay, preventing downward migration of COPCs.

Additional Comments:

**EPA Comment 2. 3.2.4 Stormwater sampling, p. 3-3**

I agree with the video inspection that will be performed as reported in the Addendum to the WP for Additional GW Delineation Activities at Site 21.

**Response to EPA Comment 2:** Comment noted. A technical memorandum documenting the activities and results of the storm sewer system video inspection is provided as Appendix D in the Draft Site 21 Remedial Investigation report.

**EPA Comment 3. 4.1.3 Groundwater geochemical Parameter Results – Field results, p. 4-1**

The large difference in pH in the groundwater samples is interesting. It would help if this variation could be expounded upon. For example, is it common for the area, or is it just in the site vicinity? Does it correlate with any other parameters or contamination? How are the high and low values distributed?

### **Response to EPA Comment 3:**

#### **EPA Comment 4. Soil CVOC Results, p. 4-1**

Although the presence of acetone and carbon disulfide could be lab contaminants, this could also depend on their concentrations. Please add a discussion regarding their concentrations and more information on why it is thought that they are lab contaminants.

**Response to EPA Comment 4:** Although acetone and carbon disulfide were detected, they were detected infrequently and at relatively low levels. There are no MCLs established for these contaminants and all detections were below the RBCs.

#### **EPA Comment 5. 4.1.4 Deep Aquifer Analytical results – Metals, p. 4-6**

The discussion regarding arsenic is interesting and I wonder if there are any other clues such as pH of the sample, water levels, etc. that could be involved in the inconsistency of the results.

### **Response to EPA Comment 5:**

#### **EPA Comment 6. Current Migration Pathways, p. 4-8**

I may have missed this, but I did not note the depth of the leaking storm water system. Its depth is important regarding migration into the hydrogeologic units on site.

**Response to EPA Comment 6:** The storm sewer system is located approximately 3.5 to 6 ft bgs. Shallow groundwater at Site 21 is generally encountered at 2 to 7 ft bgs. This information has been included in the Storm Sewer System Video Inspection Technical Memorandum as Appendix D.

#### **EPA Comment 7. Figure 4-1**

This figure is helpful, but a graphic representation of the horizontal and vertical extent of the plume might be a good idea for future reports. Additionally, since there is only 1 deep well, perhaps its location and data should be noted on this figure.

**Response to EPA Comment 7:** The vertical extent of contamination is not known across the site and the horizontal extent of several COCs is represented by the plumes shown on Figures 5-3, 5-4, and 5-5. In order to avoid confusion, the deep groundwater results are presented separately on Figure 5-7 in the Draft Site 21 Remedial Investigation Report.

#### **EPA Comment 8. Conclusions and recommendations**

I disagree with the conclusion that the Yorktown confining unit is laterally extensive across the site and that the deep aquifer does not seem to be impacted. There is not enough information to substantiate this. Additionally, the upcoming video investigation of the storm sewer is fine, however, additional sampling of soils in the vicinity of the storm sewer may be needed after this investigation is undertaken.

**Response to EPA Comment 8:** The lateral extent of the Yorktown confining unit at the site is approximately 60 ft, based on the soil bore logs recorded during installation of the Yorktown aquifer monitoring well, MW01D. This extent is consistent with the confining unit in the area and is considered to be an extensive confining unit.

**EPA Comment 9. In Potential Presence of Groundwater, p. 6-2,** the rebound conditions described here refer to Pump and Treat remedies, not just passive treatment of groundwater.

Also, it seems that an MNA remedy has already been chosen although the **Addendum** will be



evaluating reductive dechlorination. The last sentence implies that a treatability study will reduce concentrations of CVOCs (p. 6-3); a treatability study is not a remedy. A treatability study for enhancing reductive dechlorination is fine, but this may not be appropriate for the deeper groundwater since its extent is unknown.

**Response to EPA Comment 9:** A treatability study is not currently planned at Site 21. A feasibility study is currently being prepared to evaluate remedial alternatives.